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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/688,042	10/12/2000	Atsushi Watanabe	392.1702 (JDH)	5531

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EXAMINER

BARNES, CRYSTAL J

ART UNIT	PAPER NUMBER
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2121

DATE MAILED: 03/25/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/688,042

Applicant(s)

WATANABE ET AL.

Examiner

Crystal J. Barnes

Art Unit

2121

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2000.
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☐ Claim(s) _____ is/are allowed.
6) ☒ Claim(s) 1-10 is/are rejected.
7) ☒ Claim(s) 7 is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 12 October 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. The following is an initial Office Action upon examination of the above-identified application on the merits. Claims 1-10 are pending in this application.

Priority

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

Information Disclosure Statement

3. The information disclosure statement (IDS) submitted on 10 March 2004 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the examiner.

Drawings

4. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: step B7 in figure 3 is not mentioned on page 22 fourth paragraph and step F4 in figure 7 is not mentioned on page 24 last line. A proposed drawing

correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Specification

5. The disclosure is objected to because of the following informalities: "bee" on page 21 second line from bottom should be "been". Appropriate correction is required.

Claim Objections

6. Claim 7 is objected to because of the following informalities: "receiving means," on last line of claim should be "receiving means." (comma should be replaced with period). Appropriate correction is required.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

8. Claims 1-10 are rejected under 35 U.S.C. 102(e) as being anticipated by USPN 6,167,328 to Takaoka et al.

As per claim 1, the Takaoka et al. reference discloses a graphic display apparatus for robot system comprising: means for displaying (see column 7 lines 40-43, "display screen 1") and arranging a 3-D model of a robot (see column 17 lines 53-57, "surface model of robot") on a display screen to cause the displayed model to move in animation ("animated fashion") on the screen; means for storing the 3-D model of the robot (see column 9 lines 22-28, "memory 15") and one or more of 3-D models of a peripheral equipment, a machine or a part (see column 10 lines 51-56, "welding"), which is used in a system using the robot; and means for selecting (see

column 7 lines 40-45, "selector button 2") one or more 3-D models stored in said storing means ("memory 15") on the display screen ("display screen 1"); wherein the 3-D model of the robot ("surface model of robot"), or the 3-D model of the robot ("surface model of robot") and the 3-D model of a peripheral equipment, a machine or a part ("welding"), which was selected by said selecting means ("selector button 2"), are displayed and arranged on the display screen ("display screen 1"), so that at least a part of the system using the robot is approximated (see column 10 lines 62-67, "physical welding conditions").

As per claim 2, the Takaoka et al. reference discloses a graphic display apparatus for robot system comprising: means for displaying (see column 7 lines 40-43, "display screen 1") and arranging a 3-D model of a robot (see column 17 lines 53-57, "surface model of robot") on a display screen to cause the displayed model to move in animation ("animated fashion") on the screen; means for storing the 3-D model of the robot (see column 9 lines 22-28, "memory 15") and one or more of 3-D models of a peripheral equipment, a machine or a part (see column 10 lines 51-56, "welding"), which is used in a system using the robot; and means for selecting (see column 7 lines 40-45, "selector button 2") one or more 3-D models stored in said storing means ("memory 15") on the display screen ("display screen 1"); and means

for adjusting a dimensions of the 3-D model (see column 12 lines 25-39, "fine adjustment buttons 115"), selected by said selecting means ("selector button 2"), on the screen; wherein the 3-D model of the robot of which dimensions was adjusted by said adjusting means ("fine adjustment buttons 115"), or the 3-D model of the robot ("surface model of robot") and the 3-D model of a peripheral equipment, a machine or a part ("welding"), which was selected by said selecting means ("selector button 2"), of which dimensions were adjusted by said adjusting means ("fine adjustment buttons 115"), are displayed and arranged on the display screen ("display screen 1"), so that at least a part of the system using the robot is approximated (see column 10 lines 62-67, "physical welding conditions").

As per claim 3, the Takaoka et al. reference discloses a graphic display apparatus for robot system comprising: means for displaying (see column 7 lines 40-43, "display screen 1") and arranging a 3-D model of a robot (see column 17 lines 53-57, "surface model of robot") on a display screen to cause the displayed model to move in animation ("animated fashion") on the screen; a first storing means (see column 9 lines 22-28, "memory 15") for storing the 3-D model of the robot ("surface model of robot"); a second storing means (see column 11 lines 23-35, "welding conditions database 18") for storing one or more 3-D models of a

peripheral equipment, a machine or a part ("welding"), which is used in a system using the robot; means for selecting (see column 7 lines 40-45, "selector button 2") one or more 3-D models stored in said second storing means ("welding conditions database 18") on the display screen ("display screen 1"); and means for adjusting a dimension of the 3-D model (see column 12 lines 25-39, "fine adjustment buttons 115"), selected by said selecting means ("selector button 2"), on the screen; wherein the 3-D model of the robot ("surface model of robot") and the 3-D model of a peripheral equipment, a machine or a part ("welding"), which was selected by said selecting means ("selector button 2"), of which dimensions were adjusted by said adjusting means ("fine adjustment buttons 115"), are displayed and arranged on the display screen ("display screen 1"), so that at least a part of the system using the robot is approximated (see column 10 lines 62-67, "physical welding conditions").

As per claim 4, the Takaoka et al. reference discloses further comprising means for displaying, on the screen, the robot motion corresponding to at least a part of a robot program, in animation (see column 17 lines 53-57, "surface model of robot is displayed in an animated fashion").

As per claim 5, the Takaoka et al. reference discloses 3-D models of said peripheral equipment, said machine or said part (see column 10 lines 62-67, "physical welding conditions") are classified by kinds (see column 11 lines 7-9, "joint shapes, workpiece thickness, workpiece materials"), a plurality of different types (see figure 11, "t-joint, lap, flare groove, edge, corner, butt") are displayed on the screen ("Floating window 108") for each of classified kinds ("joint shapes, workpiece thickness, workpiece materials"), and a 3-D model is selected from among the displayed types ("t-joint, lap, flare groove, edge, corner, butt").

As per claim 6, the Takaoka et al. reference discloses further comprising means for adding a 3-D model of the peripheral equipment, the machine or the part of the robot in said storing means (see column 12 lines 39-48, "memory 15").

As per claim 7, the Takaoka et al. reference discloses further comprising means for sending information to and receiving information from (see column 8 lines 65-67, "cable 6") a robot controller (see column 8 lines 58-64, "controller 20") wherein the shape of the 3-D model of the peripheral equipment ("torch 41"), the machine ("robot 40, welding machine 30") or the part is adjusted based on position data (see column 7 lines 51-58, "position (coordinates)") which forms a physical feature of the actual peripheral equipment ("torch 41"), the machine ("robot 40,

welding machine 30") or the part, sent from the robot controller ("controller 20") through said information sending and receiving means ("cable 6").

As per claim 8, the Takaoka et al. reference discloses a plan view of layout of an operation system using a robot is displayed on the display screen and the 3-D model of the peripheral equipment, the machine or the part is arranged on the display screen in correspondence with the layout, thereby allowing to carry out modeling of a production system using the robot (see column 10 lines 27-39, "display mode").

As per claim 9, the Takaoka et al. reference discloses when the dimension of the 3-D model selected by said selecting means is adjusted by said adjusting means (see column 12 lines 33-35, "fine adjustment buttons 115"), coordination among the numerical values of a plurality of position data which constitute the 3-D model concerned is considered (see column 11 lines 40-47, "optimizing positions with operation limits and interference avoidance").

As per claim 10, the Takaoka et al. reference discloses further comprising a storing means (see column 11 lines 23-35, "welding conditions database 18") for storing constraint condition ("interference") which stipulates the coordination among numerical values of a plurality of position data (see column 17 lines 26-39,

"position/orientation data") which constitute each 3-D model stored in the second storing means ("welding conditions database 18"), wherein when the dimension of the 3-D model selected by said selecting means is adjusted by said adjusting means ("fine adjustment buttons"), coordination among the numerical values of a plurality of position data ("position/orientation data") which constitute the 3-D model is considered using the constraint condition ("interference") stored in said constraint condition storing means ("welding conditions database 18").

Conclusion

9. No claims are allowed.
10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The following patents are cited to further show the state of the art with respect to displaying robot control in general:

USPN 5,488,689 to Yamato et al.

US Pub. No. 2001/0018644 A1 to Schwalb et al.

JPPN 2001-105137 A to MINAMI et al.

JPPN 9-212219 A to SUZUKI

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Crystal J. Barnes whose telephone number is 703.306.5448. The examiner can normally be reached on Monday-Friday alternate Mondays off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Anil Khatri can be reached on 703.305.0282. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

cjb
22 March 2004


ANIL KHATRI
SUPERVISOR & EXAMINER